

THE GENUS *DIEMENIANA* DISTANT
WITH DESCRIPTION OF A NEW SPECIES
(HEMIPTERA-HOMOPTERA, CICADIDAE, TIBICININAE)

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[Read 12 December 1957]

Abstract

The genus *Diemeniana* Distant is confined to the southern parts of Australia and the island of Tasmania, two of the Tasmanian species, *D. turneri* and *D. tillyardi*, are mountain insects. Unlike most cicadas *Diemeniana* do not favour high trees or heavily forested country, preferring open country carrying low heathy bushes and grass tussocks.

It is unusual to capture specimens at heights greater than 3 ft. from the ground. In no species is the song loud, it may be compared with a type of "rasping" which is audible at a considerable distance. At very close quarters it is often difficult to locate a specimen although it may continue singing while being closely observed.

The key to the species is built up from a careful and detailed study of common characters. All are figured. These are supplemented with detailed drawings of special structural features. One new species is described, and a transfer to this genus is made of a species of *Abricta* (*Cicada*), *A. aurata* (Walker).

Walker's name *aurata* was preoccupied by *Cicada aurata* Linne, 1758, so Kirkaldy's name *euronotiana* (1909) must be used. The name *tasmani* Kirkaldy (1909) must also be used for *coleoprata* (Walker) preoccupied by *Cicada aurata* Linne, 1758.

Introduction

Specimens of the genus *Diemeniana* Distant have generously been lent for study by the Australian Museum in Sydney, the South Australian Museum and the Tasmanian Museum, and the writer has also studied the specimens in the National Museum of Victoria and in his own collection.

The generic characters set out by Distant (1906) while partly satisfactory are not sufficient to define the genus accurately. The descriptions of species in this paper are designed to set out relationships along similar lines.

Up to the present time nothing is known of the earlier stages of any species of *Diemeniana*. Therefore the duration of any one complete life cycle is unknown.

Field observations reveal that at least three of the species, *D. euronotiana*, *D. tasmani* and *D. nevoissi*, are partial to resting on long grass, and to a lesser extent, low bushes, at an average height of between 1 and 2 ft. from the ground. *D. tasmani* and *D. nevoissi* may be sought on grassy river or creek flats; *D. euronotiana*, by far the most widely distributed species (Tasmania to Barrington Tops, N.S.W.), occurs in open grassy bushland country, near, and to approximately 1000 ft. in Tasmania and Victoria. Going further north into New South Wales it becomes more and more a mountain insect. This can be followed from the specimen label data given later in this paper. *D. turneri*, as far as at present known, is restricted to Tasmania, and is a mountain species being recorded from the summit of Mt. Wellington (4000 ft.) in open places carrying stunted vegetation. The same may be said of the apparently rarer *D. tillyardi*, also confined as far as at present known to the Cradle Mountain region of Tasmania. The six species now included in *Diemeniana* are confined to south-eastern Australia. December, January and February are the months during which to seek them.

D. coleoprata = *D. tasmani* Kirkaldy was selected by Distant (1906) as the type species; *D. richesi* was added in 1913; *D. turneri* in 1914; *D. tillyardi* in 1917; *D. nevoissi* in 1957; and *Cicada aurata* = *Abricta aurata* (Walker) = *Abricta euronotiana* Kirkaldy, described in 1850, is now included in *Diemeniana*.

TABLE 1
Distribution of Diemeniana

Species	Qld.	N.S.W.	Vic.	Tas.	S.A.	W.A.
<i>euronotiana</i>	—	+	+	+	—	—
<i>tasmani</i>	—	+	+	+	—	—
<i>nevoissi</i>	—	+	+	—	—	—
<i>turneri</i>	—	—	—	+	—	—
<i>tillyardi</i>	—	—	—	+	—	—
<i>richesi</i>	—	+	—	—	—	—

Summary of External Morphology

Dark coloured species with rather stout bodies approximately two and a half times as long as broad; anterior wings rounded, either vitreous or infusate, with a well defined sub-apical darker marking.

HEAD. Punctate or sculptured, approximately two and a half times as wide as long, tri-lobed when viewed dorsally, median (frons) lobe largest; ocelli distinct, frons strongly convex, more or less grooved medianally and longitudinally in front; transverse ridges eight in number, interstitial furrows well defined. Rostrum extending to distal of middle coxae.

THORAX. Approximately one and a third times as long as broad, punctate, granulose, or sculptured; on each side of median two or three sulci, posterior margin strongly developed. Mesonotum bearing a raised cruciform process dorsally and posteriorly, metanotum carinate or ridged, transversely straight or almost so.

LEGS. Femora of anterior pair much thickened and very strongly developed, anterior edge tridentate, the proximal tooth being longest. Posterior tibiae with two or three sharp spines along the outer edge, and from three to five along the inner.

WINGS. Length of anterior equal to or slightly longer than body, approximately two and a half times their width; length of posterior wings about, or less than one and a half times their width.

ABDOMEN. Almost smooth or finely and sparsely punctate, dusted dorsally in places with very short fine golden hairs, ventrally more generally with fine longer dark hairs interspersed in places with short golden ones. Tympani (males) visible dorso-laterally on first abdominal segment, translucent with darker markings. Operculae (males) fairly wide to wide apart, margins more or less recurved, interior angles usually more acute than exterior.

Measurements of each species are listed in Table 2. All available specimens of both sexes were measured, body length being taken from anterior apex of frons to tip of abdomen; wing lengths from bases to apices, widths at maximum.

General

Full label data of all specimens examined are included. These are given because in the cases of *D. tillyardi*, *D. turneri*, and *D. nevoissi*, comparatively few specimens are as yet represented in collections. The types of all but two species are in the British Museum (Natural History); that of *D. tillyardi* is in the Australian Museum. The writer was therefore unable to study all the types. The Australian Museum

generously lent a paratype of *D. tillyardi*; therefore identifications of the other species were made and checked from original descriptions.

The two species in the most archaic Family of Cicadas, the *Tettigarctidae*, show in the anterior wings a strong transverse line suggesting the beginnings of division into corium and membrane. In the Sub-order *Heteroptera* of the *Hemiptera*, the anterior wing is a hemielytron, having the basal half developed into a harder coriaceous, normally opaque or semi-opaque portion, and an outer thinner membranous portion called the membrane. The clavus (anal area) also is usually coriaceous and separated from the corium by the claval suture (Cu2). This transverse line is apparent (as in *Tettigarcta*) to a much lesser extent in *D. tasmani* and *D. neboissi*, and is more pronounced in some specimens than others. This may be an indication that *Diemeniana* is, as *Tettigarcta* is thought to be, of Antarctic origin.

Some species belonging to the genus *Melampsalta* superficially resemble *Diemeniana*; the former however have the anterior wings at least one and a third times the length of the body which is three times its width, and the interior margins of the operculae are normally very wide apart. Species of *Melampsalta* are much less easily approached than *Diemeniana*, and many species of the former are partial to resting on dead bushes and trees that have been killed by fire. In such cases they are difficult to locate, their dark colour affording an excellent camouflage when resting on the charred wood.

Key to the Species of the Genus *Diemeniana*

1. Wings clear vitreous, sub-apical marking of anterior wings bordering cross veins from M1 to R3; operculum black, brownish-black, or marked with dark brown or black; anterior femora tridentate, coxal cavities pinkish-red; frons black, densely hairy .. *turneri* Dist.
Operculum not entirely black or brownish-black, widely margined pale yellowish-brown; frons dark brownish-black, densely hairy, its lateral margins widely pinkish-brown .. 2
2. Costal vein of anterior wings pinkish-red, sub-apical marking more widely bordering cross veins than in *turneri*; pronotum with a clear median yellowish-brown dorsal marking; mesonotum with a similar triangular marking on either side of the mid-dorsal
..... *tillyardi* Hardy
Sub-apical marking of anterior wings broadly bordering cross veins from M1 to R3, sharply defined, smoky black; frons shining black, its lateral margins broadly pale yellowish-brown 3
3. Operculae pale yellowish-brown, exterior third of base black; coxal cavities of anterior legs pale yellowish-brown; anterior femora with a fourth minute tooth at base of third (distal) near tibia *euronotiana* Kirkaldy
Anterior wings not clear vitreous; sub-apical marking widely bordering cross veins from M1 to R3, operculae not black or brownish-black 4
4. Anterior wings infusate, all veins brown, a fuscous patch in cell between M4 and Cu1, operculae golden yellow with narrow black basal margin which extends just beyond lateral angles *richesi* Dist.
Anterior wings darkly infusate; sub-apical marking widely bordering cross veins from M1 to R2 5
5. Costal vein dark reddish-brown; posterior wings faintly infusate in cubito-anal area; coxal cavities of anterior legs light smoky yellowish-brown; operculae pale yellowish-brown *tasmani* Kirkaldy
Anterior wings pale infusate suffused yellowish towards base; frons black, gradually lightening to pale yellowish-brown laterally and towards clypeus; coxal cavities of anterior legs pale yellowish 6
6. Sub-apical marking of anterior wings broadly black, bordering cross veins from M1 to R2; posterior wings vitreous suffused yellowish-brown near base in cubito-anal area; operculae pale yellowish *neboissi* sp. nov.

TABLE 2
Measurements (mm.) of species of Dicnemiana

Species	No. Examined	Body Length			Length of Anterior Wing			Width of Anterior Wing			Length of Posterior Wing			Width of Posterior Wing		
		Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean
<i>D. tillyardi</i>	4♂♂	20	23	21.5	21	23	22.5	9	10	9.2	13	15	14	8	9	8.7
<i>D. turneri</i>	21♂♂ 5♀♀	20 21	23 24	21.4 22.6	20 22	23 24	21.9 23	8 9	9 10	8.8 9.6	13 14	16 16	14 15.2	8 9	9 10	8.9 9.6
<i>D. tasmani</i>	77♂♂ 9♀♀	15 16	22 20	18.6 18.2	17 19	24 22	21.4 20.3	7 7	9 9	9 8.5	10 11	13 13	11.1 11.7	6 7	9 9	8.5 7.8
<i>D. euronotiana</i>	37♂♂ 4♀♀	14 15	18 16	17.1 15.5	13 14	17 15	15.4 14.8	5 5	8 6	6.1 5.8	8 9	11 10	10 9.8	5 5	6 6	5.9 5.3
<i>D. neboissi</i>	26♂♂ 1♀	17	21	18.8 19	18	22	19.6 19	7	9	8.1 8	11	15	12.4 13	7	9	7.7 8
<i>D. richesi</i>	1♂			18			17			7			11			5

Diemeniana turneri Distant

Diemeniana turneri Distant 1914. *Ann. Mag. Nat. Hist.* (8) 14: 325.

As far as is at present known this species is confined to Tasmania, and appears on the wing during the months of January and February. Most of the specimens examined by the writer were captured on Mt. Wellington at about 4000 ft. A note by Mr. Turner (Distant 1914) states that he captured a specimen among stunted vegetation on a very exposed and windy spot. The sexes are similar, so a description of the male is given.

AVERAGE LENGTH. Male 21.4 mm.; female 22.6 mm.

HEAD. Almost as wide as pronotum, intense dull black, finely punctate, clothed with fairly long black hairs, a small reddish-orange depressed spot at vertex where it is widest, gradually narrowing forwards in a groove which extends between the posterior ocelli; another reddish-orange spot on summit of frons which is almost flat, punctate; median groove narrowing from apex to posterior margin. Ocelli garnet vitreous, anterior in line with fore margin of eyes; distance between two posterior slightly greater than that between the anterior and each posterior. Antennae black. Frons black, thickly clothed with long black hairs, a pinkish brown band along each side from summit to half way, transverse ridges 9 in number, shining black, interstitial grooves duller black. Clypeus black, acutely ridged vertically, grooved along apex of ridge, approximately half as long as frons. Labrum black, pinkish-brown along anterior margin. Labium black, pinkish-brown along anterior margin to approximately one third. Genae black, thickly clothed with long black hairs, edges finely brown. Eyes brownish-black, orbits fringed with greyish-white hairs beneath and round to anterior margin of pronotum.

THORAX. Width 7 mm., black, finely punctate, clothed above, and more densely beneath, with black hairs. Pronotum with three sulci on each side, a median narrow reddish-orange longitudinal marking reaching the apex of a transverse ridge which extends half way down each side parallel with the narrow reddish-orange posterior margin from which it is separated by a groove. Extreme edges very strongly carinate, produced in the middle to form a blunt tooth. Mesonotum black, slightly more finely punctate than pronotum; a pinkish-brown spot on either side of the median at about one third, another similar but more elongate spot laterally near the base of the anterior wings. Cruciform elevation uniformly black, slightly shining, lightly punctate, bearing a few short golden hairs. Metanotum black, finely tipped reddish-orange, straight, transverse, a central tubercle between it and posterior angles of the cruciform elevation. Beneath, the coxal cavities are broadly encircled reddish-brown.

WINGS. Anterior, male, average length 21.9 mm., width 8.8 mm.; female, 23.0 mm., 9.6 mm. Clear vitreous with the sub-apical marking narrowly brown, costal and sub-costal veins reddish, others, including ambient, brownish-black; basal portions of main veins enclosing M, Cu1, and Cu2, more or less suffused reddish. Posterior, male, average length 14.0 mm., width 8.9 mm.; female, 15.2 mm., 9.6 mm. Clear vitreous, costal and ambient veins black, others reddish-brown, basal half of Cu1 sometimes blackish. Anal area with 3A broadly bordered translucent white, anal cell translucent white with an elongate blackish-brown spot.

LEGS. Generally blackish with pale creamy brown markings; moderately clothed with fine brown short hairs interspersed with longer ones; anterior pair almost wholly blackish, median less so, posterior with proximal of femur and greater portion of tibia creamy-brown becoming darker at distal. Anterior femora with three stout

sharply pointed shining black teeth, proximal longest, distal shortest and close to median. Posterior tibiae with two rows of brown spines, two on the outer row before half way, and four similar on the inner row from just before half way to near distal. Tarsi, anterior, black, terminal claws brownish-yellow; middle, first and second joints black, third black with a yellowish-brown marking, and terminal claws yellowish-black; posterior, first and second joints black, third yellowish-brown to two thirds, apex and terminal claws black. Operculae black, clothed with fine black hairs, interior margins fairly wide apart, edges recurved, interior angles sharply rounded, exterior less so.

ABDOMEN. Black, sometimes a few scattered golden hairs dorsally from segment two to apical, underside black, fairly densely clothed with black hairs and a few scattered very short golden ones; posterior margins of last six (normally) segments reddish-brown, brightest along lateral expansion of each margin. Tympani translucent dark greyish showing five parallel dark brown lines.

TYPE. In British Museum (Natural History).

LIST OF EXAMINED SPECIMENS.

In National Museum of Victoria—

Tasmania. 1 ♂, Mt. Wellington, 1.1949, C. Oke; 1 ♂ 1 ♀, 18.1.1915, G. H. Hardy; 4 ♂ ♂, Lake Fenton, 27.12.1951, J. R. Cunningham.

In Australian Museum, Sydney—

Tasmania. 2 ♂ ♂, Mt. Wellington, 18.1.1915, G. H. Hardy.

In Tasmanian Museum, Hobart—

Tasmania. 1 ♂ 1 ♀, Mt. Wellington, 3700 ft., 7.2.1942, J. W. Evans; 1 ♂ 2 ♀ ♀, Mt. Wellington, 4.2.1953, J. R. Cunningham; 1 ♂, 18.1.1915, G. H. Hardy; 1 ♀, 25.1.1947, S. Angel.

In South Australian Museum, Adelaide—

Tasmania. 3 ♂ ♂, Mt. Wellington, 16.1.1915; 1 ♂, 18.1.1915; 1 ♂, 11.2.1917, G. H. Hardy; 1 ♂, 5.1.1918, C. E. Cole.

In Author's Collection—

Tasmania. 11 ♂ ♂ 2 ♀ ♀, Miena, 3400 ft., 28.2 to 1.3.1954, R. Dobson; 2 ♂ ♂, Lake Dobson, 3000 ft., 22.3.1954, L. E. Couchman.

Diemeniana tillyardi Hardy

Diemeniana tillyardi Hardy 1917. *Proc. Roy. Soc. Tas.*: 69.

This interesting species is similar in size and appearance to *D. turneri*, but present records indicate that its distribution is apparently very local and confined to the Cradle Mountain (Tasmania) region. It may easily be distinguished from *turneri* by the larger sub-apical marking on the anterior wings, the more reddish colouration of the wing veins, the reddish banding on the underside of the abdomen, and pale brown edges to the operculae. *D. turneri* is a much blacker looking insect. The sexes are similar, so a description of the male is given.

AVERAGE LENGTH. Male, 21.5 mm.; female, no specimen available for measurement.

HEAD. Not as wide as pronotum, dull black, finely granulate, clothed with fairly long dark brown hairs, a triangular pinkish-brown depressed spot on vertex, on

either side near eyes a similar spot, less depressed. Ocelli reddish vitreous, anterior slightly depressed, very slightly anterior to fore margin of eyes, distance between two posterior slightly greater than between anterior and each posterior. Antennae shining black. Frons uniformly dark brownish-black, rather densely clothed with fairly long dark brown hairs; a pinkish-brown elongate depressed spot extending from summit to just beyond half way, sides broadly pinkish-brown, transverse ridges black, nine in number, interstitial grooves black, slightly duller than ridges. Summit of frons flat, coarsely punctate, median groove wide and shallow. Clypeus black, slightly shining, coarsely punctate, half as long as frons. Labrum brownish-black, slightly shining, planate laterally. Labium brownish-black, slightly shining. Genae black, slightly shining, moderately clothed with pale brown hairs, coarsely punctate, lamellate, bordered exteriorly pinkish-brown, carinate. Eyes opaque brownish-black, orbits fringed beneath, and almost round to anterior margin of pronotum with light greyish-brown hairs.

THORAX. Width 7 mm.; dull black, rather coarsely and irregularly punctate. Pronotum with two wide sulci on each side, these sparsely invested with short golden hairs; anterior margin very narrowly pinkish-brown, a median pinkish-brown longitudinal marking extending from near anterior margin to three quarters; posterior margin broadly pinkish-brown, almost straight. Lateral margins black, carinate, produced at just beyond one third from posterior margin to form a broad flat tooth. Mesonotum dull black, sculptured more finely than pronotum; on each side of the median a triangular pinkish-brown marking dorsally. Cruciform elevation brownish-black, almost smooth, anterior half darker in colour than posterior. Metanotum straight, transverse, light brown, a central dark brown tubercle slightly inclined towards the posterior angle of the cruciform elevation. Beneath, the coxal cavities are narrowly edged pinkish-red.

WINGS. Anterior, male, average length, 22.5 mm.; width, 9.2 mm.; female, no specimen available for measurement. Clear vitreous, costal and subcostal veins reddish-brown, others slightly paler reddish-brown as far as the marginal area, then gradually darkening to brown. Ambient vein dark brown from Cu1 A to R2. A brown irregular sub-apical spot broadly bordering cross veins between R3, R4 + 5, and M1, but not reaching R2. Posterior, male, average length, 14 mm.; width, 8.7 mm.; female, no specimen available for measurement. Clear vitreous, veins pinkish-brown, ambient normally from R2 + 3 to Cu1 A dark brown. Vein 2A edged brown on the inner side from half-way to edge of wing, the brown extending round the edge to 3A which is edged translucent white. Anal cell translucent white with a central oblong brown spot. Extreme base of wings orange-brown.

LEGS. Yellowish-brown with a pinkish suffusion, moderately clothed with fairly long fine brownish hairs, marked with fairly narrow elongate brownish-black markings. Anterior pair most heavily marked, median less so, posterior least. Anterior femora with three stout shining black teeth faintly tipped brownish, all directed slightly upwards and almost equidistant from one another, the distal and median slightly closer together than the proximal and median. Posterior tibiae with two rows of brown spines, two on the outer row, the first about half way, the other midway between it and distal; four similar on the inner row from one third to three quarters and almost equidistant from one another. Tarsi, anterior, black; middle first and second joints brownish-black; third yellowish-brown with distal half black; posterior first joint black, second brownish-yellow, third brownish-yellow with apex and terminal claws black. Operculae dark brown edged pale brown,

clothed with fine fairly long brown hairs; interior margins wide apart, edges slightly recurved, interior and exterior angles acutely rounded.

ABDOMEN. Deep black with a faint silky lustre, a few scattered silvery hairs mainly on the mid-dorsal of each segment, much denser on the last two and extending to the edges; underside black, punctate, posterior margins of segments broadly reddish-brown, invested with short silvery hairs interspersed with longer fine brown hairs; tympani translucent greyish-brown marked with five radiating darker brownish lines.

HOLOTYPE male and one paratype male in Australian Museum Collection.

LIST OF EXAMINED SPECIMENS.

In Australian Museum, Sydney—

Tasmania. 1 ♂, Cradle Mountain, 27.1.1917, G. H. Hardy. Paratype.

In Tasmanian Museum, Hobart—

Tasmania. 1 ♂, Lake St. Clair, 2.1941, J. W. Evans; 1 ♂, 19.1.1917, G. H. Hardy.

In South Australian Museum, Adelaide—

Tasmania. 1 ♂, Cradle Mountain, no date, Carter and Lea.

Diemeniana (Cicada = Abricta) euronotiana Kirkaldy

Cicada aurata Walker 1850. *List. Hom. Br. Mus.*: 215.

Cicada aurata Atkinson 1885. *Jour. Asiatic Soc. Bengal* 53: 230.

Tibicen auratus Goding and Froggatt 1904. *Proc. Linn. Soc. N.S.W.* 29: 606.

Abricta aurata Distant 1906. *Syn. Cat. Hom.* 1: 130.

Abricta aurata Froggatt 1907. *Australian Insects*: 351.

Abricta euronotiana Kirkaldy 1909. *Canad. Ent.*: 391.

Abricta aurata Ashton 1912. *Mem. nat. Mus. Vic.* 4: 24; Pl. IV, fig. g.

Abricta aurata Ashton 1914. *Trans. Roy. Soc. S. Aust.* 38: 349.

Abricta aurata Tillyard 1926. *Insects of Australia and New Zealand*: 161.

This species inhabits open country where it rests on grasses and low bushes at an average height of about 2 ft. from the ground. Its range extends from Barrington Tops, N.S.W., to Tasmania. In Victoria and Tasmania it occurs from near sea level to about 1000 ft.; extending its range northwards it becomes more and more a mountain insect; on the Barrington Tops it is found normally at about 4000 ft. and over. In habits it resembles *D. neboissi*, and its season ranges from December to February. In this revision of the genus *Diemeniana* it has been decided to remove it from *Abricta* and place it under *Diemeniana*. Species of *Abricta* have the anterior wings three times as long as wide, and rest on branches and trunks of trees at heights usually greater than 3 ft. from the ground.

AVERAGE LENGTH. Male, 18.6 mm.; female, 18.2 mm.

HEAD. Slightly wider than pronotum, dull black, finely granulate, clothed dorsally with sparse fine golden hairs interspersed more densely with fairly long blackish ones; a pale yellowish-brown depressed spot on vertex, a similar narrower spot on summit of frons converging and extending back towards the anterior ocellus, another small yellowish-brown spot near each eye. Summit of frons finely punctate, grooved medianally, each half planate and gradually sloping to median. Ocelli red vitreous, anterior depressed, almost in line with anterior margin of pronotum, distance between two posterior slightly greater than between anterior and each posterior. Antennae black. Frons varying shades of yellowish-brown often ranging to dark brown towards

the summit; moderately clothed with fairly long brownish hairs, a median groove extending to clypeus, transverse ridges 9 in number, interstitial grooves darker in colour. Clypeus yellowish-brown, a very small dark brown obscure spot in centre, distal narrowly dark brown, more than half the length of frons. Labium yellowish-brown, apex broadly black. Genae brownish-black, irregularly sculptured, clothed with moderately long brownish hairs, exterior edges finely carinate, lower half of carinae yellowish-brown. Eyes pale yellowish-brown, orbits fringed beneath with fairly long light brown hairs and round to anterior margin of pronotum.

THORAX. Width 7 mm., black, finely punctate, sparsely dusted with fine short golden hairs. Pronotum with two sulci on each side, anterior margin pale yellowish-brown; a median pale yellowish-brown marking extending to half way then curving outwards towards the posterior margin. In some specimens a dark brown spot occurs posteriorly in this yellowish-brown marking. Edges broadly yellowish-brown, carinate, produced to form a rather sharp tooth just posterior to half way. Posterior margin very prominent, yellowish-brown, almost transversely straight. Mesonotum black, extremely finely punctate, on each side of median a triangular yellowish-brown "H-like" dorsal patch; the posterior portion of the black area thus enclosed being dusted with fine golden hairs. Cruciform elevation dull yellowish-brown with a dark brown median linear marking, sparsely dusted with short golden and a few longer fine brown hairs. Metanotum dull yellowish-brown, almost transversely straight and with a central black tipped tubercle. Beneath, the thorax is pale yellowish-brown with black markings, and fairly densely clothed with fine rather long pale yellowish-brown hairs.

WINGS. Anterior, average length, male, 21.4 mm., width, 9.0 mm.; female, 20.3 mm., 8.5 mm. Clear vitreous, costal and sub-costal veins reddish, others, including ambient, reddish as far as outer discal area, black in marginal area. A brownish-black irregular sub-apical spot broadly bordering cross veins between R3, R4 + 5, and M1. Posterior, average length, male 11.1 mm, width, 8.5 mm.; female, 11.7 mm., 7.8 mm. Clear vitreous veins pale yellowish-brown excepting ambient which is black; 2A and 3A narrowly bordered brown. 2A greatest distally, anal cell edged pink adjoining abdomen and with an opaque brown central spot. Extreme bases of wings pinkish-red.

LEGS. Pale yellowish-brown with black markings which are most extensive on the anterior pair, about equal in extent on the median and posterior. Anterior femora with three shining black teeth directed outwards and slightly upwards; proximal at half way and about twice as large as the others, median slightly larger than distal, the latter with a very small tooth near its base adjoining the tibia. Median and distal close together and situated medianally on posterior half of femur. Posterior tibiae with two rows of brown spines, two on the outer row, first about half way, second beyond half way from first to distal, normally four (rarely five) on the inner row, first at half way, others equidistant from one another to distal. Tarsi, anterior, first and second joints black, third black with base yellowish; middle, first joint black, second and third yellowish, the latter with apex and terminal claws black. Operculae pale yellowish-brown, clothed with very fine pale brown hairs, interior margins wide apart, edges abruptly recurved, interior angles acute, exterior openly rounded.

ABDOMEN. Deep black, a few scattered short golden hairs dorsally on each segment, more laterally on the posterior margins of each segment. Apical segments usually wholly dusted with golden hairs. Underside pale yellowish-brown clothed with golden hairs interspersed with longer pale brown hairs; narrowly black along intersegmental margins especially on the first segment which has a median black

spot. Lateral margins of segments with black markings and clothed with fine golden hairs. Tympani translucent smoky brown showing five darker irregular markings.

TYPE. In British Museum (Natural History).

LIST OF EXAMINED SPECIMENS.

In National Museum of Victoria—

New South Wales. 1 ♂ 1 ♀, Barrington Tops, 5000 ft., 13.12.1921, A. N. Burns; 5 ♂ ♂, Tubrabucca, 4500 ft., 17.11.1953, A. Neboiss; 1 ♂, Blue Gum Knob, Chichester, 3.2.1921, Pres. by N. Cayley; 1 ♂, Burrawong, 7.1.1951, R. Dobson.

Victoria. 1 ♂, Victoria, 16.1.1909, Pres. S. W. Fulton; 1 ♂, Meeniyan, 1896, T.K. (T. Kershaw); 3 ♂ ♂, Wilson's Promontory, 12.1905; 2 ♂ ♂, 30.12.1920, J. Kershaw; 3 ♀ ♀, Moe, 23.12.1898; 1 ♀, 2.1899, W.K. (W. Kershaw); 1 ♀, Traralgon, no date, Miss J. Galbraith; 1 ♂, Yarragon, 12.1892, J. A. Kershaw; 2 ♂ ♂, Kinglake, 2.12.1945?; 5 ♂ ♂, Mt. Buffalo, 4500 ft., 13.1.1955, A. Neboiss; 1 ♂, Buxton, 7.12.1954, A. Neboiss; 1 ♂, Yarram, 12.1892, J. A. Kershaw.

Tasmania. 1 ♂, Wedge Bay, 8.1.1914; 1 ♀, 28.12.1913, G. H. Hardy; 1 ♀, Tasmania, no date, named by F. Walker; 2 ♂ ♂, Launceston, 1.1.1934, R. T. M. Pescott.

In Australian Museum, Sydney—

Tasmania. 1 ♂, Wedge Bay, 7.1.1914; 1 ♂, Geeveston, 24.12.1914, G. H. Hardy.

In Author's Collection—

New South Wales. 2 ♂ ♂, Barrington Tops, 5000 ft., 16.12.1921, A. N. Burns; 8 ♂ ♂, Tubrabucca, 4500 ft., 17.11.1953, A. Neboiss.

Victoria. 1 ♂, Yinnar, 2.1.1953, A. L. Brown; 1 ♂, 16.12.1948; 1 ♂, 5.1.1952, J. Courtenay; 3 ♂ ♂, Driffield, 3.12.1949, J. Courtenay; 1 ♂, 27.12.1951, A. L. Brown; 2 ♂ ♂, St. Andrews North, 1.1.1952, A. N. Burns; 2 ♂ ♂, Kinglake, 2.12.1954, A. N. Burns; 1 ♂ 1 ♀, 14.12.1946, 2 ♂ ♂, 30.1.1946, C. Langley; 3 ♂ ♂, Kallista, 3.12.1950, 2 ♂ ♂ 1 ♀, 24.12.1946, 1 ♂, Belgrave, 21.12.1930, 2 ♂ ♂, Cockatoo, 28.12.1921, 3 ♂ ♂, Heathmont, 2.11.1930, A. N. Burns; 1 ♂, Tarrawarra, 3.1.1954, 2 ♂ ♂, Wilson's Promontory, 31.1.1954, A. Neboiss.

Tasmania. 6 ♂ ♂, Kingston, 1.1.1948, 1 ♂, 17.2.1948, 1 ♂, 3.1.1947, J. R. Cunningham; 2 ♂ ♂ 1 ♀, Lindisfarne, 3.1.1954, L. E. Couchman.

Diemeniana tasmani Kirkaldy

Cicada coleoptrata Walker 1850. *List. Hom. Br. Mus.*: 223.

Tibicen coleoptrata Stal 1862. *Ofv. Vet.-Ak. Forh.*: 485.

Tibicen coleoptratus Goding and Froggatt 1904. *Proc. Linn. Soc. N.S.W.* 29: 608.

Diemeniana coleoptrata Distant 1905. *Ann. Mag. nat. Hist.* (7) 16: 206.

Diemeniana coleoptrata Distant 1906. *Syn. Cat. Hom.* 1: 146.

Diemeniana tasmani Kirkaldy 1909. *Canad. Ent.* 41: 290, n.n. for *coleoptrata* preocc. Walker.

Diemeniana coleoptrata Ashton 1912. *Mem. nat. Mus. Vic.* 4: 24; Pl. IV, fig. d.

This Cicada occurs from late December until mid-February, and is always associated with open country bordering river or creek flats where specimens may

be found resting on grass stems, usually in tussocks, or rarely on low growing shrubs at an average height of 18 in. from the ground. The sexes are similar so a description is given of the male.

AVERAGE LENGTH. Male, 17.1 mm.; female, 15.5 mm.

HEAD. Dull black coarsely granulate, moderately invested with very short golden hairs; a small depressed orange-brown marking on vertex and an obscure similar marking on summit of frons and extending down its front to about half way. Summit of frons planate, punctate, widely and shallowly grooved medianally. Ocelli garnet vitreous, anterior in line with foremargin of eyes, distance between two posterior slightly greater than that between the anterior and each posterior. Antennae dull brownish-black. Frons brownish-black, a median groove from summit to base, transverse ridges 9 in number, interstitial grooves with very fine golden hairs. Clypeus pale brown, half as long as frons, a small raised black spot in the centre. Labrum pale brown. Labium pale brown, apex slightly darker. Genae dark brown, very finely sculptured, strongly produced laterally, sparsely invested with short golden hairs. Eyes dark brown, orbits fringed below with long light brown hairs which extend round to the anterior margin of the pronotum.

THORAX. Width, 5 mm., brownish-black, coarsely granulate, pronotum with two fairly deep sulci, the outer extending as far back as the posterior margin, the other meeting its opposite in the centre at the median longitudinal groove; sometimes two obscure light brown patches, one on each side of the median groove and adjoining the posterior margin, edges strongly carinate, light brown, produced to form a tooth at approximately one third from the posterior margin. Mesonotum brownish-black, dusted laterally with very fine golden hairs, more densely dorsally just anterior to the cruciform elevation; more finely and less granulate than pronotum; a light brown elongate triangular patch on either side of the median, edges light brown. Cruciform elevation brownish-black, extreme apex blackish. Posterior margin sharply carinate, yellowish-brown. Metanotum brown, dusted with golden hairs, transversely straight medianally then curving slightly forwards to the base of the posterior wings.

WINGS. Anterior, average length, male, 15.4 mm., width, 6 mm.; female, 14.8 mm., 5.8 mm. Infusate pale brown, costal and sub-costal veins reddish-brown, others, including ambient, brown. A sub-apical dark brown patch bordering cross veins from R1 to M1, variable in width in individuals. Posterior, average length, male, 10.0 mm., width, 5.9; female, 9.8 mm., 5.3 mm. Faintly infusate pale brown, veins slightly tinged pinkish. Anal area almost clear hyaline.

LEGS. Generally light brown with elongate dull black markings; femora of anterior pair clothed with short pale brown hairs, three stout black teeth along the inner margin, the proximal longest and directed upwards, median and distal about equal in size, directed outwards. Posterior tibiae with two rows of black spines, two between half way and distal on the outer row, three similar and similarly placed on the inner row. Tarsi, anterior, black; middle, first and second joints black, third yellowish-brown to half way, distal half and terminal claws black; posterior, first joint black, second and third yellowish-brown, the latter with apex and terminal claws black. Operculae pale yellowish-brown, bases dull blackish-brown, dusted lightly with very short golden hairs, interior margins wide apart, exterior and interior angles rounded.

ABDOMEN. Brownish-black, extremely finely punctate, posterior margins of last five segments brown, last two (rarely three) segments dusted dorsally with golden

hairs. Underside brown, dusted with fine pale golden hairs, median areas of segments and anterior portions of lateral expansions blackish. Tympani translucent brown showing five almost parallel darker irregular lines.

TYPE. In British Museum (Natural History).

LIST OF EXAMINED SPECIMENS.

In National Museum of Victoria—

New South Wales. 1 ♀, named by F. Walker, 1873.

Victoria. 1 ♂, Launching Place, 12.1.1918, F. P. Spry; 2 ♂ ♂, Mt. Feathertop, 10.1.1944, C. Oke; 1 ♂ 1 ♀, Fernshaw, no date, from Kershaw; 1 ♂ 1 ♀, Gippsland, no data; 9 ♂ ♂, Alexandra, 1.1956, E. Matheson.

In Australian Museum, Sydney—

Victoria. 1 ♀, Woori Yallock, 3.2.1907, F. P. Spry.

In Tasmanian Museum, Hobart—

Tasmania. 1 ♂ (freshly emerged specimen), Tasmania, no data.

In Author's Collection—

Victoria. 1 ♂ 1 ♀, Tarrawarra, 3.1.1932, 14 ♂ ♂, Woori Yallock, 30.12.1947, A. N. Burns; 1 ♂, Alexandra, 13.1.1956, E. Matheson; 11 ♂ ♂, Steeles Creek, 6.1.1954, 1 ♂, Healesville, 7.2.1954, A. Neboiss.

Diemeniana neboissi sp. nov.

This interesting species inhabits open country where it rests on grass stems and sometimes low bushes at a height of not more than 3 ft. from the ground. It occurs during January and February. The sexes are similar so a description of the male is given.

AVERAGE LENGTH. Male, 18.8 mm., female, 19.0 mm.

HEAD. Almost as wide as pronotum, dull black, coarsely granulate, sparsely clothed with fine golden pubescence; a pale brown linear marking on summit of frons which extends down the front to half way, another slightly paler deeply depressed spot on vertex ending acutely between the posterior ocelli. Ocelli pinkish-red vitreous, anterior depressed and in line with fore-margin of eyes, distance between two posterior slightly greater than that between anterior and each posterior. Antennae dark brownish-black. Frons black, dusted with very short golden hairs, more densely in interstitial grooves. A pale brown central marking extending beyond the summit to half way down front, transverse ridges black, 9 in number, interstitial grooves brownish-black. Summit of frons coarsely punctate, weakly grooved medianally, each half planate and sloping gradially towards median. Clypeus pale brown with a very small dark brown central marking; almost two thirds the length of the frons. Labrum pale brown, a faint dark brown line on each side. Labium pale brown, extreme apex brownish-black. Genae brownish-black, outer edges finely and sharply carinate. Eyes greyish-brown, orbits lightly fringed with golden hairs beneath, and round to anterior margin of pronotum.

THORAX. Width, 7 mm., dull black, very finely punctate, dusted with very short golden hairs. Pronotum with two sulci on each side, median groove pale brown from head to half way where it meets the first sulcus; the second almost reaching the posterior margin. Extreme edges of pronotum pale brown, strongly carinate, pro-

duced medianally to form a short tooth. Posterior margin transversely straight, brownish-yellow. Metanotum black, finely punctate, dusted sparsely anteriorly, more densely posteriorly, with very short fine golden hairs; a raised pale yellowish-brown elongate longitudinal spot on each side of the median extending from the anterior margin to beyond half way. Cruciform elevation yellowish-brown, apex tipped dark brown. Apices of posterior ridge and exterior angle dark brown. Metanotum ridged, yellowish-brown, almost transversely straight, and with a small median slightly darker brown tubercle.

WINGS. Anterior, average length, male, 19.6 mm., width, 8.1 mm.; female, 19.0 mm., 8.0 mm. Pale hyaline brown gradually darkening towards the base; costal and sub-costal veins reddish-brown, others, including ambient, pale brown; sub-apical spot dark brown and widely bordering cross veins from R1 to M1. Posterior, average length, male, 12.4 mm., width, 7.7 mm.; female, 13.0 mm., 8.0 mm. Almost clear vitreous, gradually becoming very pale hyaline brown from near half way towards base. All veins pale yellowish-brown, 2A and 3A bordered opaque whitish.

LEGS. Dusted with very short golden hairs interspersed with fine and longer brownish ones, pale yellowish-brown with black markings, greatest on the anterior pair, about equal in extent on median and posterior pairs on which they are restricted to coxae and femora. Anterior femora with three black teeth, the proximal at half way being the largest and directed slightly upwards, median slightly larger than distal, these close together medianally between the proximal and tibia. Posterior tibiae with two rows of dark brown spines, two on the outer row, the first half way, the other median to proximal; three on the inner row, the first at half way, the other two equidistant from one another. Tarsi, anterior, first and second joints black, third yellowish to half way, distal half and terminal claws black; middle, first joint black, second and third yellowish, apex and terminal claws of latter, black; posterior, first joint black, second and third yellowish, apex and terminal claws of the latter, black. Operculae pale yellowish-brown, faintly dusted with extremely fine short golden hairs; interior margins not very wide apart, edges weakly recurved, interior angles acute, exterior broadly rounded.

ABDOMEN. Dull black, dorso-median area of first two or three segments dusted lightly with fine short golden hairs; posterior margin of each segment broadly orange-brown. Underside pale yellowish-brown, faintly and irregularly suffused dark brown, dusted with fine short golden hairs; a black central patch on second segment, usually small dull black patches on the last four segments. Tympani pale greyish-brown, showing five bi-lineate dark brown irregular markings.

HOLOTYPE male, four paratype males and one paratype female in the author's collection; allotype female and 18 paratype males in National Museum, one paratype male in Australian Museum.

LIST OF EXAMINED SPECIMENS.

In National Museum of Victoria—

Victoria. 7 ♂♂, Tawonga, 28.1.1957, 1 ♂, Biggara, 29.1.1957, 9 ♂♂, Towong, 29.1.1957, A. Neboiss; 1 ♀, Towong, 22.1.1950, E. Matheson.

In Author's Collection—

Victoria. 1 ♂, Tawonga, 28.1.1957, A. Neboiss; 4 ♂♂ 1 ♀, Corryong, 12.1.1954, E. Matheson.

Diemeniana richesi Distant

Diemeniana richesi Distant 1913. *Ann. Mag., nat. Hist.* (8) 12: 488.

Apparently very little is known about this species which was first taken at Cooma, N.S.W., in 1912. I am indebted to Mr. R. J. Izzard of the British Museum (Natural History) for his kindness in supplying the description and photograph of this Cicada. I do not know of any specimens of this species occurring in any Australian collection.

LENGTH. Male, 18 mm.; female ?.

HEAD. Almost as wide as pronotum, black with scattered golden pubescence, similar in sculpture to *D. tasmani*. Ocelli, red vitreous, equidistant from eyes, distance between two posterior slightly greater than between anterior and each posterior. Antennae, basal segment black, other segments missing from specimen. Frons, black, transverse ridges nine in number, not pitted but very faintly punctate, invested with short golden pubescence; interstitial grooves black. Clypeus, black with golden pubescence, triangular in shape, half as long as frons. Labrum dark brown with short black stripes. Labium, golden brown, apex black. Genae, black with golden pubescence, lunulate in shape, attenuated at clypeus, narrowly margined yellow.

THORAX. Width, 7 mm., black; underside yellow, coxal cavities margined black. Pronotum with scattered golden pubescence, lateral and posterior margins brownish-yellow, two sulci on each side, the anterior most pronounced and meeting at the median. Lateral margins carinate, produced to form a rather sharply pointed tooth posteriorly to half way. Mesonotum black margined brownish-yellow; two elongate median yellow bands extending to posterior margin of pronotum. Cruciform elevation yellow. Metanotum black, ridged transversely at median then curving slightly forwards at each side towards base of posterior wings.

WINGS. Anterior, length, male, 17 mm., width, 7 mm.; female, ?. Infusate, all veins brown, a fuscous patch in cell between M4 and Cu1, sub-apical spot fuscous, widely bordering cross veins between M1 and R3. Posterior length, male, 11 mm., width, 5 mm.; female, ?. Clear vitreous, veins brown, a small almost central fuscous spot in angle at basal angle of M1 + 2 and M3 + 4; veins 2A and 3A bordered opaque whitish.

LEGS. Anterior and middle pair golden yellow with fuscous elongate markings, tarsi blackish-brown; middle pair with all joints golden yellow including tarsi with exception of apical joint which is black; posterior with coxae and trochanters fuscous, femur golden yellow, tibia golden yellow with extreme apex black, tarsi yellow excepting apical joint which is black. Anterior femora with three blackish-brown spines, the proximal at half way, long and inclined forwards; median and distal shorter and close together, also inclined forwards. Posterior tibiae with two rows of blackish spines, six in all, the proximal in each row at half way. Operculae with interior margins fairly wide apart, golden yellow excepting for a narrow black basal margin broken by a greyish-white spot; lateral margins black in basal half. Interior angles broadly rounded, exterior acutely so.

ABDOMEN. Black, segments narrowly margined brownish-yellow posteriorly invested with sparse silvery pubescence. Ventral surface yellow excepting for a basal black margin and a series of black fasciae medianally on each segment and a black stripe on the seventh connexivum. Genital capsule brownish, sparsely golden pubescent. Tympani translucent whitish-yellow with five brown ridges.

TYPE. In British Museum (Natural History).

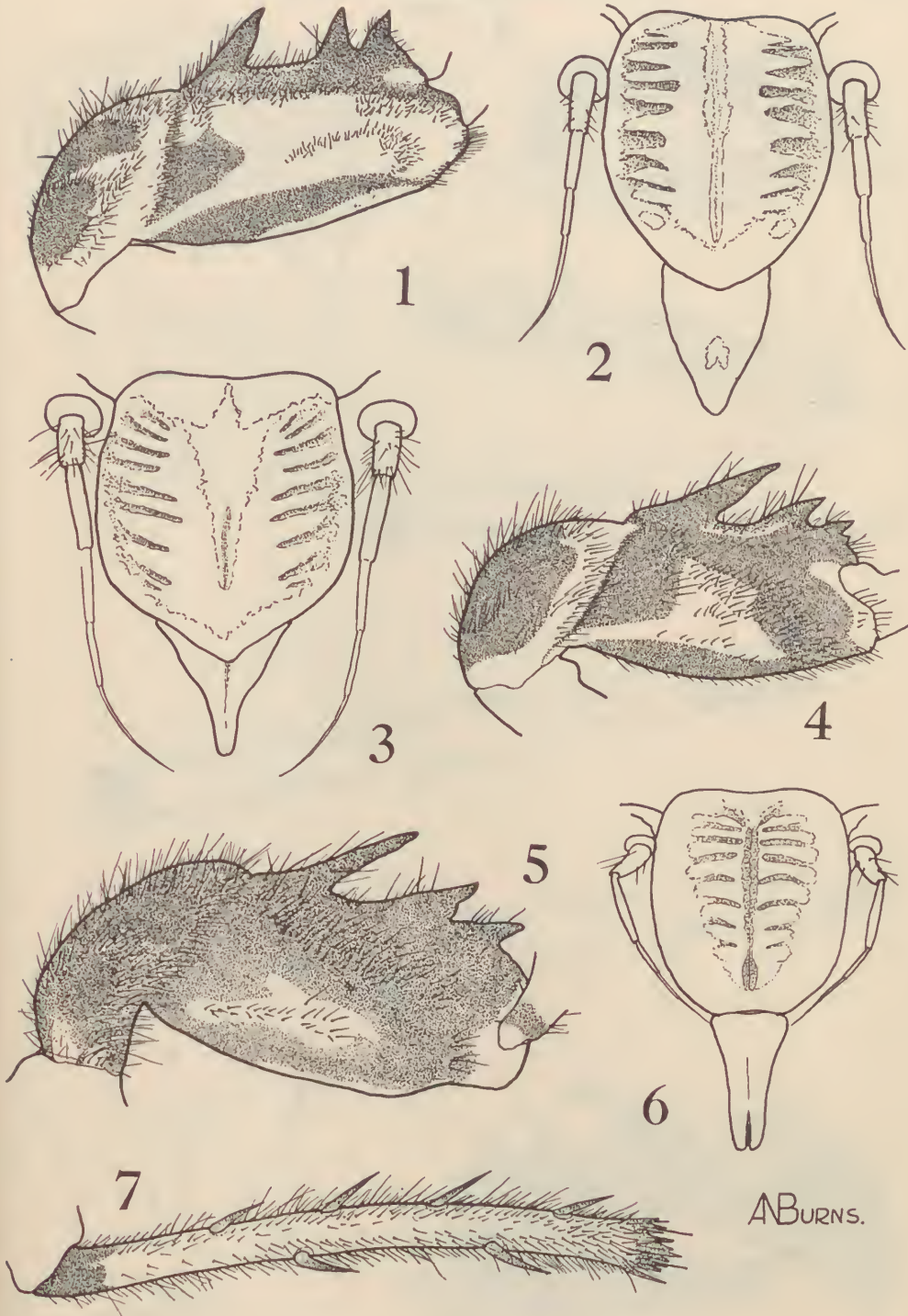
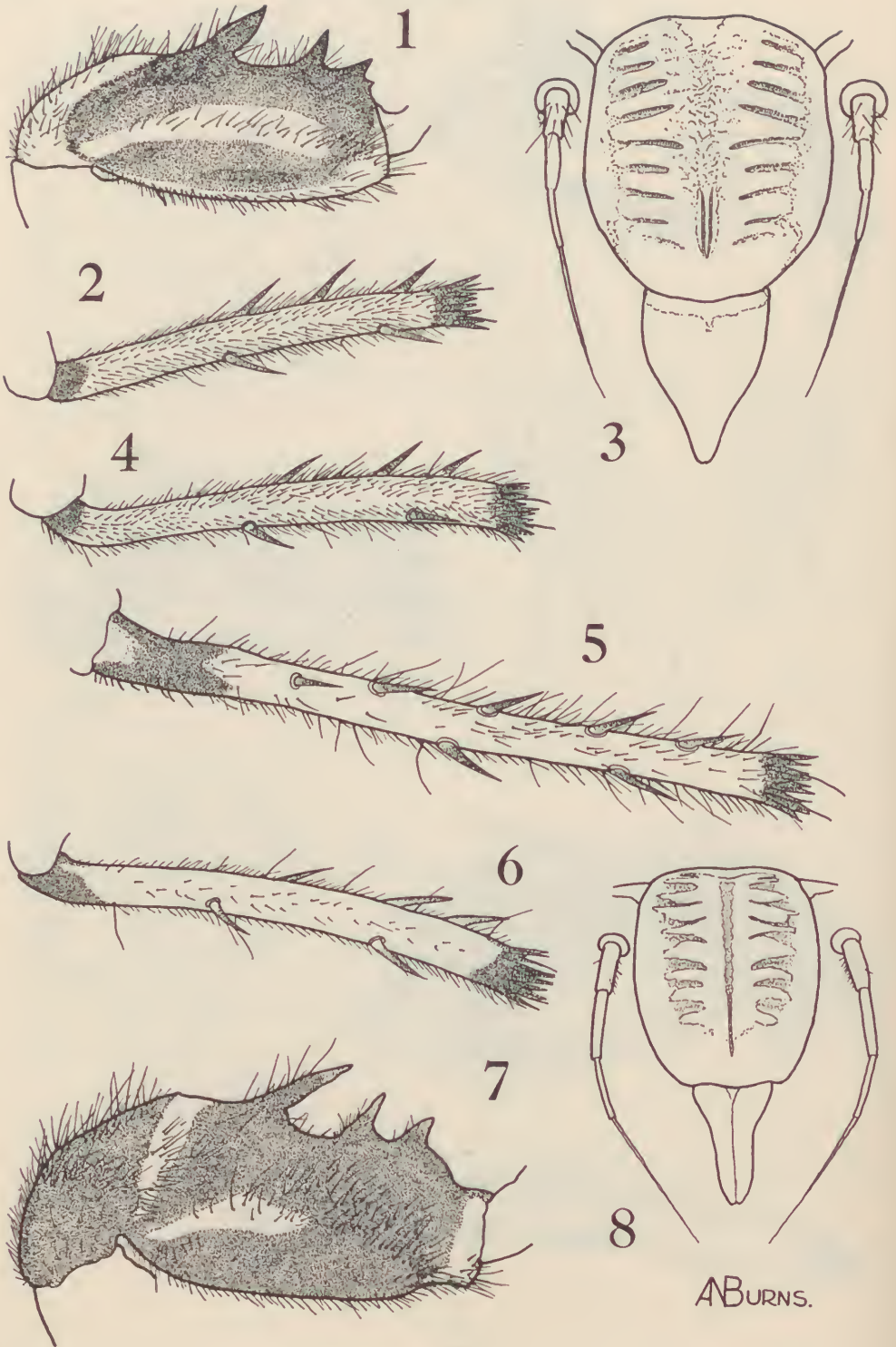


FIG. 1



ABURNS.

FIG. 2

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Explanation of Figures

- FIG. 1.—(1) Anterior femur *Diemeniana nevoissi* ♂. (2) Frons *Diemeniana nevoissi* ♂.
 (3) Frons *Diemeniana tillyardi* ♂. (4) Anterior femur *Diemeniana euronotiana* ♂.
 (5) Anterior femur *Diemeniana tillyardi* ♂. (6) Frons *Diemeniana euronotiana* ♂. (7) Posterior tibia *Diemeniana tillyardi* ♂.
- FIG. 2.—(1) Anterior femur *Diemeniana tasmani* ♂. (2) Posterior tibia *Diemeniana tasmani* ♂.
 (3) Frons *Diemeniana turneri* ♂. (4) Posterior tibia *Diemeniana nevoissi* ♂.
 (5) Posterior tibia *Diemeniana turneri* ♂. (6) Posterior tibia *Diemeniana euronotiana* ♂.
 (7) Anterior femur *Diemeniana turneri* ♂. (8) Frons *Diemeniana tasmani* ♂.

Explanation of Plate

PLATE XXV

- Fig. 1.—*Diemeniana turneri* Distant ♂.
 Fig. 2.—*Diemeniana richesi* Distant ♂.
 Fig. 3.—*Diemeniana tasmani* Kirkaldy ♂.
 Fig. 4.—*Diemeniana tillyardi* Hardy ♂.
 Fig. 5.—*Diemeniana euronotiana* Kirkaldy ♂.
 Fig. 6.—*Diemeniana nevoissi* sp. nov. ♂.